

Application Number: 10/525,693
Amendment Dated: August 17, 2009
Office Action Dated: April 15, 2009

REMARKS

This paper is responsive to the Final Office Action dated April 15, 2009 for which a three (3) month period of response was given. A Petition and fee for a one (1) month extension of time hereby accompanies this paper. Also enclosed herewith is a Request for Continued Examination (RCE) and fee for same. As such, the Commissioner is hereby authorized to treat this paper as authorization to charge the necessary extension of time and RCE fees, as well as any needed additional claims fees, to Deposit Account No. 50-0959, Attorney Docket No. 089498.0444.

Claims 1 through 21 are pending in the present application. Claim 1 has been amended to better state the nature of the present invention. Support for the amendments to claim 1 can be found in the specification as filed. Accordingly, no new matter has been added. As such, entry and consideration of the amendments to the claim is believed due and is respectfully requested.

I. The 35 U.S.C. § 112, First and Second, Rejections:

Claims 1 through 21 have been rejected under 35 U.S.C. § 112, first paragraph, as failing to comply with the written description requirement. Specifically, the Examiner contends that the phrase “substantially solid nanofiber structure” is unsupported by the specification as filed.

Additionally, claims 1 through 21 have been rejected under 35 U.S.C. § 112, second paragraph, as indefinite. Regarding this rejection, the Examiner contends that the phrase “substantially solid nanofiber structure” is indefinite due to the inexact nature of the words “substantially solid.”

In light of the above, claim 1 has been amended to remove the phrase “substantially solid nanofiber structure.” Given this, the 35 U.S.C. § 112, first and second paragraph, rejections of claims 1 through 21 have been rendered moot, and withdrawal thereof is believed due and is respectfully.

II. The 35 U.S.C. § 103(a) Rejections:

Claims 1 through 4, 7, 8 and 15 through 20 are rejected under 35 U.S.C. § 103(a) over Rose et al. (United States Patent No. 5,447,786), in view of Dzenis et al. (United States Patent No. 6,265,333), with support from Araki et al. (United States Patent No. 3,666,417).

Rose et al. relates to large area selective infrared line emitters that can be formed from composites of rare earth metal compound particulates dispersed and interlocked in a network of connected structure-forming fibers, wherein such structures have an emissivity of less than about 0.1 in the range 0.7 to 5 microns. As would be apparent to one of skill art, Rose et al. does not disclose, teach or suggest an electrospun nanofiber that is derived from an electrospinning solution comprising: at least one nanofiber forming material or at least one nanofiber precursor material; and at least one optical material or at least one optical precursor material, wherein the nanofiber so derived is coated or doped with at least one optical material (emphasis supplied). This is because the structures of Rose et al. do not contain doped or coated fibers, but rather contain fibers that have therein particles that are loosely dispersed and/or interlocked in between various portions of a fibrous structure.

Turning to Dzenis et al., Dzenis et al., relates to a fiber reinforced composite material that contains a resin matrix and primary reinforcement fibers, wherein the composite material further contains secondary, smaller diameter, reinforcement fibers at one or more ply interfaces, or portion thereof. As would be apparent to one of skill art, Dzenis et al. does cure the deficiencies of Rose et al. This is because, Dzenis et al. requires the use of a resin material in order to encourage curing, crosslinking, and/or the growth of materials so as to yield an improvement in the mechanical properties of a resulting fiber matrix.

As such, Dzenis et al. fails to disclose, teach or suggest an electrospun nanofiber that is derived from an electrospinning solution comprising: at least one nanofiber forming material or at least one nanofiber precursor material; and at least one

optical material or at least one optical precursor material, wherein the nanofiber so derived is coated or doped with at least one optical material (emphasis supplied).

Araki et al. relates to a process for the manufacture of carbon or graphite fibers from polymethyl vinylketone. As is apparent from the disclosure contained therein, Araki et al. fails to disclose, teach or suggest any type of coated and/or doped fiber. As such, Araki et al. fails to cure the deficiencies of both Rose et al. and Dzenis et al. This is because Araki et al. fails to disclose, teach or suggest an electrospun nanofiber that is derived from an electrospinning solution comprising: at least one nanofiber forming material or at least one nanofiber precursor material; and at least one optical material or at least one optical precursor material, wherein the nanofiber so derived is coated or doped with at least one optical material (emphasis supplied).

Furthermore, in one embodiment, the present invention is directed to nanofiber structures that are either doped and/or coated with one or more optical materials that are suitable for use in thermo-photovoltaic applications. As can be seen from the disclosures contained in any of Rose et al., Dzenis et al. and/or Araki et al., none of the cited art, taken alone or in any combination, discloses, teaches or suggests the present invention as recited in pending claim 1. Given this, the 35 U.S.C. § 103(a) rejection of claims 1 through 4, 7, 8 and 15 through 20 is believed to be unfounded, and withdrawal thereof is believed due and is respectfully requested.

Claim 5 is rejected under 35 U.S.C. § 103(a) over Rose et al. (United States Patent No. 5,447,786), in view of Dzenis et al. (United States Patent No. 6,265,333), with support from Araki et al. (United States Patent No. 3,666,417) and further support from Goldstein et al. (United States Patent No. 5,356,487). The teachings and shortcomings of Rose et al., Dzenis et al. and Araki et al. are discussed in detail above.

Regarding Goldstein et al., Goldstein et al. relates to, among other things, a process for the preparation of a porous ceramic burner that includes drawing a solution which contains metal oxide fibers onto a burner skeleton by use of a vacuum to form a base fiber layer. As is apparent from the disclosure contained therein, Goldstein et al. fails to disclose, teach or suggest the coated and/or doped fiber of claim 1, from which

claim 5 depends. As such, Goldstein et al. fails to cure the deficiencies of Rose et al., Dzenis et al. and Araki et al. This is because Goldstein et al. fails to disclose, teach or suggest an electrospun nanofiber that is derived from an electrospinning solution comprising: at least one nanofiber forming material or at least one nanofiber precursor material; and at least one optical material or at least one optical precursor material, wherein the nanofiber so derived is coated or doped with at least one optical material (emphasis supplied). Given this, the 35 U.S.C. § 103(a) rejection of claim 5 over the combination of Rose et al., Dzenis et al., Araki et al. and Goldstein et al. is believed to be unfounded, and withdrawal thereof is believed due and is respectfully requested.

Claim 6 is rejected under 35 U.S.C. 103(a) over Rose et al. (United States Patent No. 5,447,786), in view of Dzenis et al. (United States Patent No. 6,265,333), with support from Araki et al. (United States Patent No. 3,666,417), as applied to claim 1, and further in view of Tatarchuk et al. (United States Patent No. 5,102,745). The teachings and shortcomings of Rose et al., Dzenis et al. and Araki et al. are discussed in detail above.

As discussed above, Rose et al. does not disclose, teach or suggest the features of pending claim 1, as Rose et al. does not disclose, teach or suggest a electrospun nanofiber in accordance with pending claim 1. However, the Examiner contends that Tatarchuk et al. discloses that it is known in the art to use catalyst particles within multi-fiber composite networks.

However, after reviewing Tatarchuk et al., it is clear that this piece of art only discloses catalytic materials that are loosely dispersed and/or interlocked in between various portions of a two-component fibrous structure. As such, Tatarchuk et al. fails to cure the deficiencies of Rose et al., Dzenis et al. and Araki et al. This is because Tatarchuk et al. fails to disclose, teach or suggest an electrospun nanofiber that is derived from an electrospinning solution comprising: at least one nanofiber forming material or at least one nanofiber precursor material; and at least one optical material or at least one optical precursor material, wherein the nanofiber so derived is coated or doped with at least one optical material (emphasis supplied). Given this, the 35 U.S.C. §

Application Number: 10/525,693
Amendment Dated: August 17, 2009
Office Action Dated: April 15, 2009

103(a) rejection of claim 6 over the combination of Rose et al., Dzenis et al., Araki et al. and Tatarchuk et al. is believed to be unfounded, and withdrawal thereof is believed due and is respectfully requested.

Claims 9 through 14 are rejected under 35 U.S.C. 103(a) over Rose et al. (United States Patent No. 5,447,786), in view of Dzenis et al. (United States Patent No. 6,265,333), with support from Araki et al. (United States Patent No. 3,666,417) as applied to claim 1, and further in view of Milstein et al. (United States Patent No. 5,601,661). The teachings and shortcomings of Rose et al., Dzenis et al. and Araki et al. are discussed in detail above.

Milstein et al. discloses various mixtures of base oxides with rare oxides. Given this, and the clear shortcomings of any and all of Rose et al., Dzenis et al. and Araki et al., the addition of Milstein et al. cannot render obvious pending claims 9 through 14. This is because Milstein et al. also fails to disclose, teach or suggest an electrospun nanofiber that is derived from an electrospinning solution comprising: at least one nanofiber forming material or at least one nanofiber precursor material; and at least one optical material or at least one optical precursor material, wherein the nanofiber so derived is coated or doped with at least one optical material (emphasis supplied).

Accordingly, for at least the above reason, the 35 U.S.C. § 103(a) rejection of claims 9 through 14 over the combination of Rose et al., Dzenis et al., Araki et al. and Milstein et al. is believed to be unfounded, and withdrawal thereof is believed due and is respectfully requested.

III. Conclusion:

Accordingly, reconsideration and withdrawal of the claim objection, the 35 U.S.C. § 112 rejections, and the 35 U.S.C. § 103(a) rejections of claims 1 through 21 are believed due and are respectfully requested.

For at least the foregoing reasons, claims 1 through 21 of the present application are believed to be in condition for allowance, and a Notice of Allowance is respectfully requested.

Application Number: 10/525,693
Amendment Dated: August 17, 2009
Office Action Dated April 15, 2009

Should the Examiner wish to discuss any of the foregoing in more detail, the undersigned attorney would welcome a telephone call.

Respectfully submitted,

/Joseph J. Crimaldi/
Joseph J. Crimaldi, Reg. No. 41,690
Roetzel & Andress
222 South Main St.
Akron, Ohio 44308
(330) 376-2700

August 17, 2009

1621868.01.089498.0444